

Amendment and Response to First Office Action
Client Docket No. D/99176
Attorney Docket No. 022.0318.US.UTL

Listing of Claims:

1 1. (Amended) A method for authenticating a hardcopy document,
2 comprising the steps of:
3 recording in a memory a scanned representation of the hardcopy document
4 at a selected resolution;
5 generating lossy compressed image data with the scanned representation
6 of the hardcopy document;
7 producing an authentication token with the lossy compressed image data;
8 the authentication token including one of encrypted image data and hashed
9 encrypted image data; the hashed encrypted image data including the lossy
10 compressed image data and an encrypted hash of the lossy compressed image
11 data; and
12 arranging in the memory the scanned representation of the hardcopy
13 document with a digital encoding of the authentication [data] token for rendering
14 at a printer a signed and authenticated hardcopy document.

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1 2. (Original) The method according to claim 1, further comprising the
2 step of verifying the signed hardcopy document by:
3 recording a scanned representation of the signed hardcopy document;
4 decoding the authentication token from the scanned representation of the
5 signed hardcopy document;
6 authenticating the lossy compressed image data using one of the encrypted
7 image data and the hashed encrypted image data; and
8 decompressing the authenticated lossy compressed image data for
9 comparison with the signed hardcopy document to determine whether the signed
10 hardcopy document is authentic.

1 3. (Original) The method according to claim 2, further comprising the
2 step of visually comparing the signed hardcopy document with the authenticated
3 lossy compressed image data.

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1 4. (Original) The method according to claim 2, further comprising the
2 step of visually comparing the signed hardcopy document with a printed hardcopy
3 document of the authenticated lossy compressed image data.

1 5. (Original) The method according to claim 2, wherein said step of
2 producing an authentication token is performed with a private key and said step of
3 authenticating lossy compressed image data is performed with a public key.

1 6. (Original) The method according to claim 1, further comprising the
2 step of encoding the authentication token in a low intensity background pattern.

1 7. (Original) The method according to claim 1, further comprising the
2 step of encoding the authentication token in embedded data.

1 8. (Original) The method according to claim 7, wherein said encoding
2 step encodes the authentication token in a halftone pattern.

1 9. (Original) The method according to claim 8, wherein said encoding
2 step encodes the authentication token in a hyperbolic halftone pattern.

1 10. (Original) The method according to claim 8, wherein said encoding
2 step encodes the authentication token in a serpentine halftone pattern.

1 11. (Original) The method according to claim 7, wherein said encoding
2 step encodes the authentication token in data glyphs.

1 12. (Original) The method according to claim 1, wherein said step of
2 generating lossy compressed image data loses document formatting contained in
3 the scanned representation of the hardcopy document.

1 13. (Original) The method according to claim 12, wherein said step of
2 generating lossy compressed image data further comprises the step of
3 compressing the scanned representation of the hardcopy document by identifying

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4 exemplars and locations of exemplars; each exemplar identified representing one
5 or more image segments from the scanned representation of the hardcopy
6 document.

1 14. (Original) The method according to claim 13, wherein said
2 compressing step records the exemplars at a resolution that is less than the
3 selected resolution of the scanned representation of the hardcopy document.

1 15. (Original) The method according to claim 13, wherein said
2 compressing step records that locations of exemplars at a resolution that is less
3 than the selected resolution of the scanned representation of the hardcopy
4 document.

1 16. (Original) The method according to claim 1, wherein said
2 compressing step compresses identified portions of the image data at a plurality of
3 compression ratios.

1 17. (Original) The method according to claim 16, further comprising
2 the step of segmenting text data from pictorial data before compressing the
3 scanned representation of the hardcopy document.

1 18. (Original) A method for authenticating a hardcopy document,
2 comprising the steps of:
3 recording in a memory a scanned representation of the hardcopy document
4 at a selected resolution;
5 lossy compressed image data with the scanned representation of the
6 hardcopy document;
7 producing an authentication token with the lossy compressed image data;
8 the authentication token including one of encrypted image data and hashed
9 encrypted image data; the hashed encrypted image data including the lossy
10 compressed image data and an encrypted hash of the lossy compressed image
11 data; and

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12 arranging in the memory a digital encoding of the authentication data for
13 rendering at a printer a label containing the digital encoding of the authentication
14 data.

1 19. (Original) The method according to claim 18, further comprising
2 the step of fixedly attaching the label to the hardcopy document to produce a
3 signed hardcopy document.

1 20. (Original) The method according to claim 19, further comprising
2 the step of verifying the signed hardcopy document by:
3 recording a scanned representation of the signed hardcopy document;
4 decoding the authentication token from the scanned representation of the
5 signed hardcopy document;
6 authenticating the lossy compressed image data using one of the encrypted
7 image data and the hashed encrypted image data; and
8 decompressing the authenticated lossy compressed image data for
9 comparison with the signed hardcopy document to determine whether the signed
10 hardcopy document is authentic.

1 21. (Amended) A system for authenticating a scanned representation
2 of a hardcopy document, comprising:
3 an image compression module for generating lossy compressed image data
4 with the scanned representation of the hardcopy document;
5 an authentication token generator for producing an authentication token
6 with the lossy compressed image data; the authentication token including one of
7 encrypted image data and hashed encrypted image data; the hashed encrypted
8 image data including the lossy compressed image data and an encrypted hash of
9 the lossy compressed image data; and
10 an encoding module for arranging the scanned representation of the
11 hardcopy document with a digital encoding of the authentication [data] token for
12 rendering at a printer a signed and authenticated hardcopy document.

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22. (Amended) The system according to Claim [18] 21, further
comprising:
a memory for recording the signed hardcopy document;
a decoding module for decoding the signed hardcopy document to define
decoded signed image data;
an authentication module to authenticating the decided signed image data
using of the encrypted image data and the hashed encrypted image data to define
authenticated image data; and
a decompression module for decompressing the authenticated image data
to define decompressed image data;
means for comparing the signed hardcopy document with the
authenticated hardcopy document to determine whether the signed hardcopy
document is authentic.

23. (Amended) The system according to Claim [18] 21, wherein said
image compression module compresses the scanned representation of the
hardcopy document by identifying exemplars and locations of exemplars; each
exemplar identified representing one or more image segments from the scanned
representation of the hardcopy document.